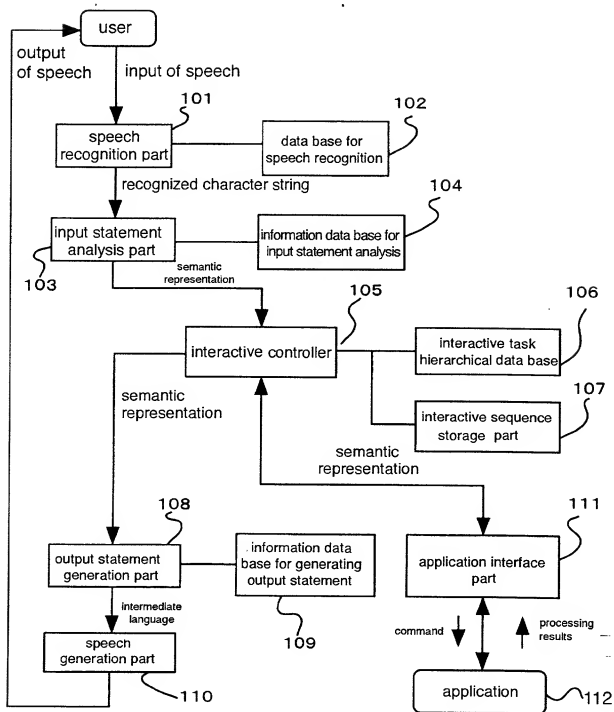
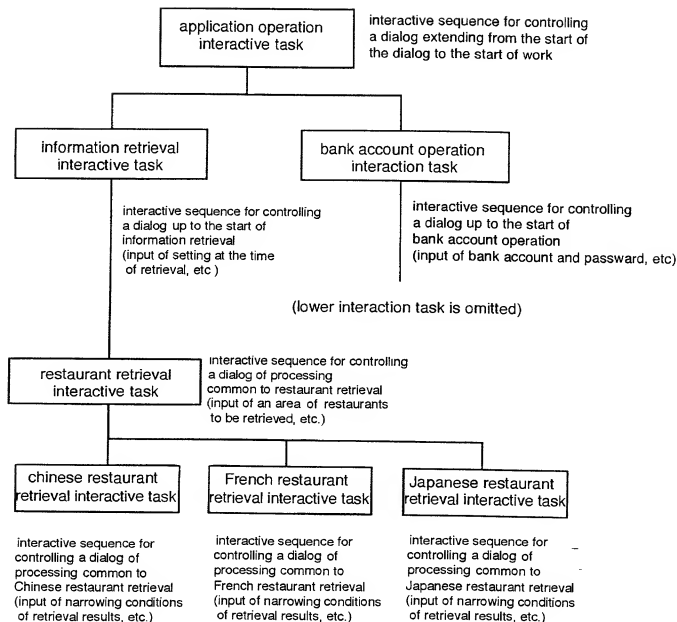


FIG. 1



CONFIGURATION OF AN INTERACTIVE SPEECH INTERFACE UNIT  
ACCORDING TO A FIRST EMBODIMENT

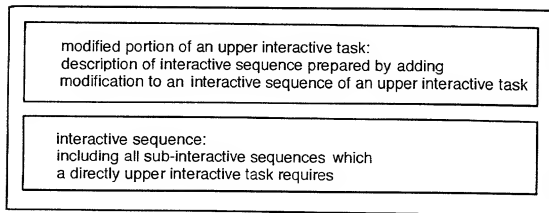
FIG.2



EXAMPLE OF INTERACTIVE TASK HIERARCHICAL DATA BASE

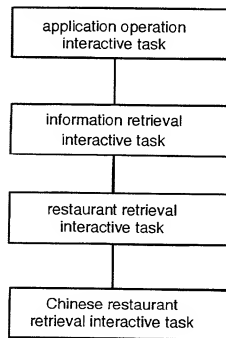
## FIG. 3

interactive task



CONFIGURATION OF AN INTERACTIVE TASK

## FIG. 4



EXAMPLE OF AN UPPER AND LOWER CHAIN OF  
AN INTERACTIVE TASK FETCHED FROM DATA BASE

1000045-120401

interactive sequence name

{

{

interactive procedure:

Event comprises the following (1) to (5).

- Action comprises the following (1) to (4).

- }

}

## CONFIGURATION OF AN INTERACTIVE SEQUENCE

## FIG. 6

```
interactive sequence name: information retrieval sequence
{
  interactive status name: information retrieval results wait status
  interactive procedure:
  {
    if (event "elapse of 5 seconds from the start of retrieval" occurred){
      action "output of [retrieval is under execution] to a user" is executed;
    }
    if (event "the number of retrieval results is 0" occurred){
      transit to an interactive status "the number of retrieval results being too
small";
    }
    else if (event "the number of retrieval results ranging from 1 to 9" occurred) {
      transit to an interactive status "retrieval results being obtained";
    }
    else if (event "the number of retrieval results being not less than 10"
occurred) {
      action "the number of retrieval results being too large" is executed;
      if (event [acknowledgement by a user] occurred){
        transit to an interactive status "retrieval results being obtained";
      }
    }
    }
    else{
      transit to an interactive status "retrieval results being obtained";
    }
  }
}
(description of another interactive status)
}
```

EXAMPLE OF AN INTERACTIVE SEQUENCE

## FIG. 7

interactive task of interactive task hierarchical data base

information retrieval interactive task

```
modified portion of an upper interactive task:
application operation interactive sequence{
event / action / next interactive status: PROC_001
}
```

```
information retrieval interactive sequence
{
interactive status name: STATUS_101
event / action / next interactive status: PROC_101
interactive status name: STATUS_102
event / action / next interactive status: PROC_102
}
```

restaurant retrieval  
interactive task

```
modified portion of upper interactive task:
information retrieval interactive sequence
{
interactive status name: STATUS_101
event/action/next interactive status: PROC_103
}

interactive sequence:
restaurant retrieval interactive sequence
{
interactive status name: STATUS_201
event / action / next interactive status: PROC_201
interactive status name: STATUS_202
event / action / next interactive status: PROC_202
}
```

interactive sequence stored in an  
interactive sequence storage part

```
application operation interactive sequence
{
interactive status name: initial status
event / action / next interactive status: PROC_001
}
```

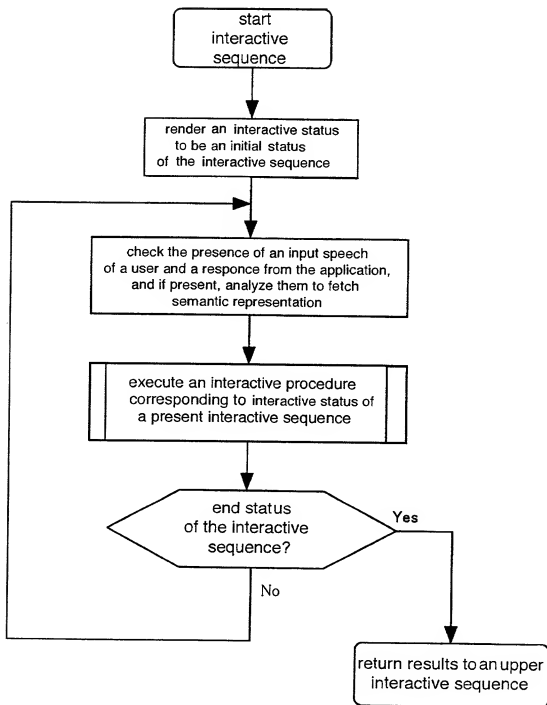
```
information retrieval interactive sequence
{
interactive status name: STATUS_101
event/action/next interactive status: PROC_103
interactive status name: STATUS_102
event / action / next interactive status: PROC_102
}
```

```
restaurant retrieval interactive sequence
{
interactive status name: STATUS_201
event / action / next interactive status: PROC_201
interactive status name: STATUS_202
event / action / next interactive status: PROC_202
}
```

upper interactive sequence is described  
in normal face, and lower interactive  
sequence is described in boldface.

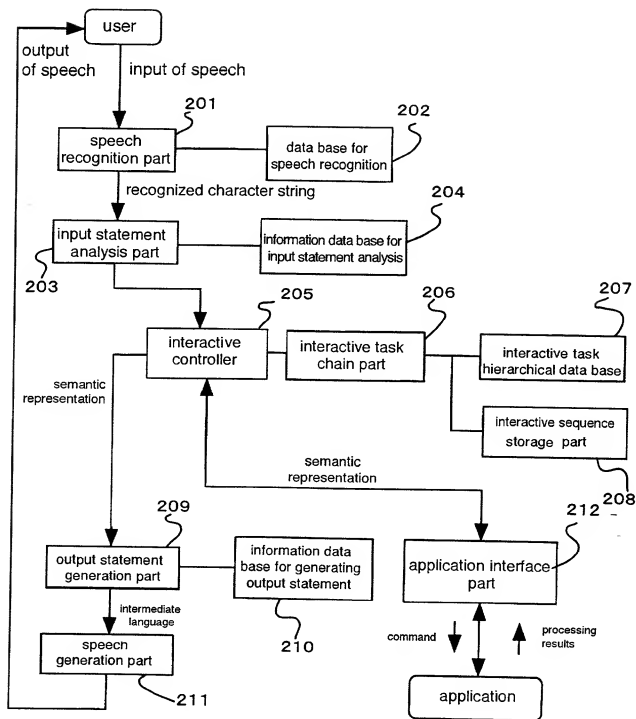
EXAMPLE OF STORAGE OF AN INTERACTIVE SEQUENCE  
IN AN INTERACTIVE SEQUENCE STORAGE PART

FIG. 8



PROCESSING FLOW BY AN INTERACTIVE CONTROLLER

FIG. 9



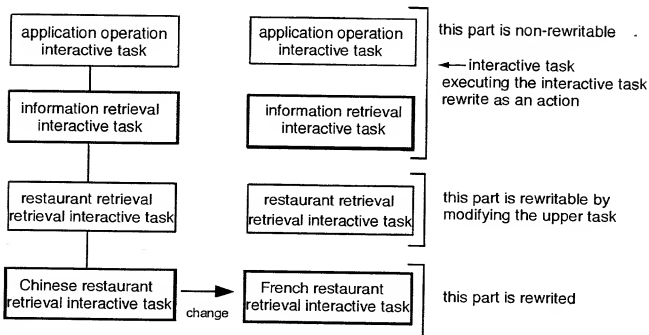
CONFIGURATION OF AN INTERACTIVE SPEECH INTERFACE UNIT

ACCORDING TO A SECOND EMBODIMENT



# FIG. 10

In case of rewriting "Chinese restaurant retrieval interactive task"  
to "French restaurant retrieval interactive task"  
when executing "information retrieval interactive task"



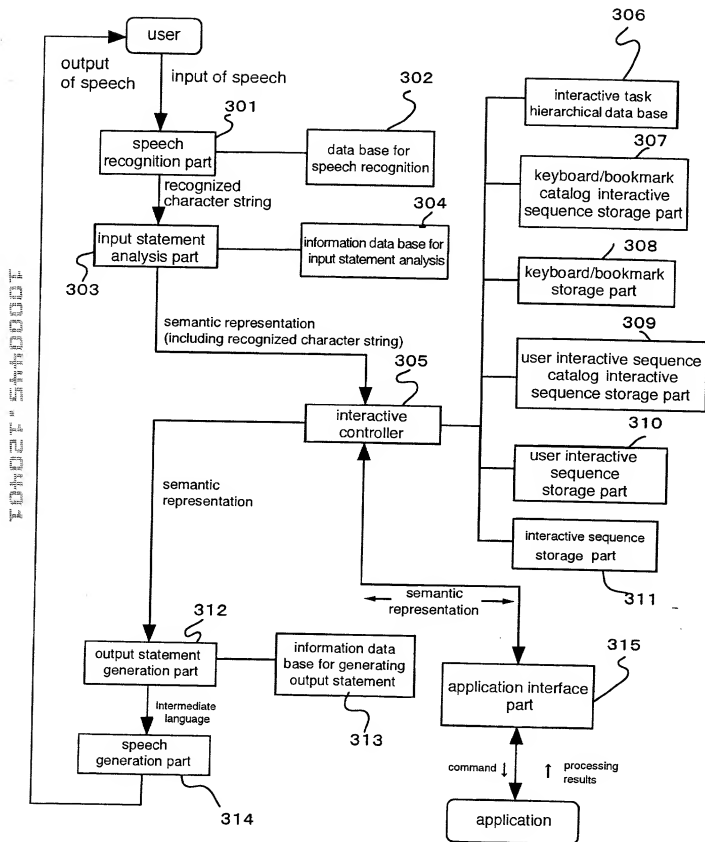
EXAMPLE OF REWRITE OF AN INTERACTIVE TASK CHAIN

## FIG. 11

```
interactive sequence name: information retrieval interactive sequence
{
  interactive status name: initial status
  interactive procedure:
  {
    action "output of [what do you retrieve?]" is executed;
    if(event "a user inputs [Chinese restaurant]" occurred){
      action "rewrite to an interactive task including Chinese restaurant" is executed;
      action "call Chinese restaurant retrieval interactive sequence" is executed;
    }
    else if (event "a user inputs [Japanese restaurant]" occurred){
      action "rewrite to an interactive task chain including Japanese restaurant" is
      executed;
      action "call Japanese restaurant retrieval interactive sequence" is executed;
    }
    else if (event "a user inputs [French restaurant]" occurred){
      action "rewrite to an interactive task chain including French restaurant" is executed;
      action "call French restaurant retrieval interactive sequence" is executed;
    }
    (description of another interactive procedure)
  }
  (description of another interactive status)
}
```

EXAMPLE OF AN INTERACTIVE SEQUENCE

FIG. 12



CONFIGURATION OF AN INTERACTIVE SPEECH INTERFACE UNIT  
ACCORDING TO A THIRD EMBODIMENT

## FIG. 13

interactive sequence name

{

interactive status name: (describe an identifier of an interactive status)

{

interactive procedure

All sets of "event" "action" "interactive status to be transitive next" which are used in the interactive status in concern are described. For one event, describe not less than one action, one next interactive status.

Event comprises the following (1) to (5).

- (1) input statement from a user (describe in semantic representation)
- (2) results returned from a sub-interactive sequence
- (3) results returned from a calling application
- (4) decision results of various conditions (time out of a response wait from user, etc.)
- (5) a keyword in a keyword definition data base

Action comprises the following (1) to (4).

- (1) deliver output statement to user (describe in semantic representation) to output statements generation part
- (2) call sub-interactive sequence
- (3) deliver semantic representation for executing an application to an application interface sequence part
- (4) no action (perform only a status transition without doing anything)

}

(description of another interactive status)

}

CONFIGURATION OF  
A USER CATALOG INTERACTIVE SEQUENCE

## FIG. 14

(perform a dialog and "shift to retrieval end status")  
input by user: catalog of user interactive sequence  
response by system: input event name  
input by user: no event  
response of system: input action  
input by user: no action  
response of system: input next interactive status  
input by user: end status  
response of system: interactive sequence is cataloged

※: in a status such as the end status where the user can not actually attach a bookmark at that status, it can be used as a reserved word.

EXAMPLE (1) OF USER INTERACTIVE SEQUENCE CATALOGED DIALOG

## FIG.15

```
Interactive sequence name: (omitted)
{
  interactive status name: retrieval end
  status
  interactive procedure:
  {
    action "end" is executed;
    (source interactive procedure)
  }

  (description of another interactive
  status)
}
```

INTERACTIVE SEQUENCE CATALOGED IN FIG. 14



## FIG. 19

```
interactive sequence name: information retrieval interactive sequence
{
  interactive status name: retrieval end status
  interactive procedure:
  {
    if(event "keyword [end]is inputted" occurred){
      action "end" is executed
    }
    ....
  }
  (description of another interactive status)
```

INTERACTIVE SEQUENCE CATALOGED IN FIG. 18

## FIG. 20

```
(system executes retrieval)
response by system: retrieval results are read out
                    ....
                    system will end
(system ended automatically)
```

DIALOG USING USER INTERACTIVE SEQUENCE IN FIG. 15

## FIG.21

```
(system executes retrieval)
response by system: retrieval results are read out
                    ....
input by user: end
response by system: system will end
(system ended automatically)
```

DIALOG USING USER INTERACTIVE SEQUENCE IN FIG. 19

### EXAMPLE OF APPLICATION OPERATION ACCORDING TO A CONVENTIONAL INTERACTIVE SPEECH



# FIG. 23 PRIOR ART

EXAMPLE OF CONVENTIONAL  
AN INTERACTIVE SEQUENCE

